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UNITED STATES DEPARTMENT OF AGRICULTURE

Rural Electrification Administration

St. Louis 2, Missouri

General Specifications

for

Locker Plant Refrigeration

Construction and Installation

Revised 3-10-'45

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GENERAL SPECIFICATIONS FOR LOCKER PLANT DESIGN

Insulation

The Specifications outlined below, using cork as a standard, are for the purpose of guiding the Project in the design and type of installation desired.

Substitutions for cork insulation may be made, provided they meet with the approval of the Design and Construction Division of REA.

In each case, Specifications must be written in detail for each room, setting forth the methods of installation and requirements necessary to insure a neat and thoroughly finished installation.

The design of the various rooms of the Locker Plant shall follow the general procedure as practiced for cold storage plants based on cork-board insulation or its equivalent.

	<u>Outside Wall</u>	<u>Ceiling</u>	<u>Floor</u>
Locker Room (0°F)	8"	8"	6"
Sharp Freezer (0°-15°F)	9"	9"	7"
Chill Room (35°F)	4"	5"	4"
Aging Room (35°F)	4"	5"	4"
Curing Room (38°F)	4"	4"	4"

Walls between the Sharp Freezer Room and any other refrigerated space, if not below 35°F should have at least 6" of corkboard equivalent insulation.

Where unusual high temperature climatic conditions or exposure are encountered, additional insulation will be specified as each case may require.

Insulation Specifications

The surface to be insulated shall be brushed free of all loose and foreign materials and shall be thoroughly dry. Rough surfaces shall be filled out with a coat of Portland Cement plaster consisting of one part Portland Cement and two and one-half parts clean, sharp sand. When dry, the surface shall be primed with a brush coat of asphalt primer. When the wall height is over 12'-0", a horizontal support shall be bolted to the wall to carry the weight of the insulation above, and imbedded in the first layer of insulation.

Insulation shall consist of (as specified) inches of (corkboard or equivalent) applied in (as specified) layers. Each sheet of insulation shall be dipped, on back surface and all contacting edges, in hot insulating asphalt at a temperature of from 350° to 400°F, and immediately pressed firmly into place. Adhesion shall be uniform over the entire area.

The second layer is to be similarly applied to the wall over the first layer, with all joints staggered in relation to each other. The sheets shall be additionally secured to each other by wood skewers and with galvanized nails through caps to treated wood grounds bolted to the wall. In securing the sheets there shall be not less than two wood skewers or galvanized nails used per square foot.

All joints must be tightly buttoned and all voids eliminated. Surfaces of the insulation shall be made smooth to receive the finish.

Two coats of Portland Cement finish shall be applied over the exposed insulated surface. The first shall be thin and well scratched. The second coat shall be float-finished and blocked off in squares, not over 4'-0", or as may be designated.

Wood Ceilings

One layer of waterproof insulating paper, with edges lapped not less than 3", shall be tacked directly against the underside of the wood ceiling.

The first layer of corkboard shall be applied in hot asphalt and secured to the wood ceiling with special galvanized nails, not less than three to the square foot. The second layer shall be applied in hot asphalt and secured by the means of wood skewers of proper length, not less than three to the square foot.

The exposed corkboard surfaces shall be finished with an asphalt emulsion mixed in the proportions of:

50 gallons of asphalt emulsion
115 pounds asbestos floats
275 pounds (2-3/4 cu. ft.) dry, screened sand
15 gallons of clean water

The ingredients shall be mixed together until uniform in color throughout. A minimum quantity of water should be used, necessary to give the proper troweling consistency.

The mixture then shall be applied directly to the corkboard surface in two coats of approximately 1/8" in thickness. Before applying the first coat, care must be exercised to point up all voids, open joints or broken corners with the mixture. The first coat must be hand dry before the second coat is applied. The second coat shall be troweled smooth, with corners true and clean. Moisture-resistant and odorless paint shall not be applied to the finish until thoroughly dry.

For Unexcavated Floor Area

In case the floor should be in an unexcavated area, a 12" or 18" cinder or sand fill shall be placed, confined to the building wall foundations, and well drained. This shall be well tamped, followed by a concrete base of not less than 3 inches. The concrete floor shall be brushed free of all loose and foreign materials.

The first layer of corkboard shall be dipped in hot asphalt and applied directly against the concrete sub-floor. The second layer of insulation shall also be dipped in hot asphalt and immediately pressed into the first layer, breaking all joints. The entire surface is then to be hot mopped and flooded with asphalt of not less than 60 pounds per 100 square feet. The insulation to be installed must meet local requirements and be specified by those in charge.

A concrete and grit wearing floor shall then be poured, of not less than 3" of concrete, reinforced with 6" x 6" of 12 gauge wire mesh. The final coat shall be float finished and smooth, providing easy drainage when such is specified in the building plans or by the Engineer in charge.

NOTE: IT MUST BE REALIZED IN LOCKER ROOM COLD STORAGE PLANTS THERE IS NO POSSIBILITY OF EVER SHUTTING OFF THE REFRIGERANT TO ALLOW REPAIRS TO BE MADE TO THE INSULATION. FAILURES DUE TO MOISTURE FREEZING THRU, AND OTHER FAULTS OF IMPROPER APPLICATION OF INSULATION WHICH CANNOT BE CORRECTED, DEMAND THAT ONLY THOSE THOROUGHLY EXPERIENCED IN THIS WORK SHOULD ATTEMPT THE INSTALLATION OF THE INSULATION.

Cold Storage Doors

Cold storage doors for the Chill Room, Aging Room and Curing Room shall be of the track door type with not less than 4" of corkboard or equivalent insulation. Where this type of door does not apply, a standard type of cooler door, with 4" insulation, shall be used as specified. The Locker Room door, opening into the lobby, shall be of the cold storage door type, not less than 3' x 6' -6", with a door closer and with fastener easy to operate. The thickness of the insulation of the Locker Room door shall be of the same thickness of insulation as that of the wall in which the door is installed. The Locker Storage Room shall be provided with a vestibule and vestibule door at the patrons' entrance. Vestibule doors shall be of the freezer type, insulated with 2" of corkboard or equivalent insulation, with gaskets and hardware as specified, and with a "Thermo Pane" peephole or equivalent.

The Quick Freeze Room door (2'-6" x 6'-6") shall be of the cold storage type with not less than 6" of corkboard insulation, where freezing temperatures are maintained within the refrigerated space or where temperature differentials are above normal. Hardware and gaskets shall conform to specifications given. Care shall be exercised to install substantial sills, preferably of beveled wood securely fastened to the floor.

All hardware shall be of the best grade steel, cast bronze or forged brass, with hinges designed for heavy duty and rough usage, with rust-proof or plated finish. The locks shall be of the heavy duty type, adjustable roller strike with an inside releasing rod. They shall be easy to operate and shall be arranged for locks where specified.

All gaskets shall be of rubber or high grade rubber composition, designed to provide perfect seal between the door and the door frame.

There shall be installed between the chill and aging room, a double swinging batten door similar to Stevenson's "Auto Close" door as manufactured by the Jamison Cold Storage Door Company.

Pipe Insulation and Covering

Cork covering shall be considered as standard. However, substitutions for cork will be acceptable, provided they meet with the approval of the Design and Construction Division of REA.

The cork covering and fitting covers, or its equal, shall be installed according to the following schedule:

- 25° to 0°F -- Special thick brine thickness, 2.63" to 4.0"
- 0° to 35°F -- Brine thickness, 1.70" to 3.0"
- Above 35°F -- Ice water thickness, 1.20" to 1.39"

All refrigeration lines shall be tested, free from plaster, rust and moisture before applying insulation.

Sectional covering shall be applied with the end joints broken by starting with one-half and one full length piece, and longitudinal joints shall be on top and bottom of pipe. Waterproof cement shall be used on all joints with wire and bands in place. At least six copper clad wires or 1/2" galvanized bands shall be placed per 36" section. All fitting cover joints shall be cemented with not less than four copper clad wires or galvanized bands on screwed fittings and not less than six wires or bands on flanged fittings. All spaces between fittings shall be filled with an adequate filler.

Where cork lagging is to be applied instead of sectional covering or fitting covers, apply lagging with end joints broken by starting with alternate 18 and 36 inch lengths. Waterproof cement shall be used on all joints and secured with copper clad wires or galvanized bands spaced not less than 6 inches apart.

Where refrigeration piping passes thru insulated walls into a refrigerator room, the covering shall extend into the room one inch beyond the wall, and care exercised to see that the joints between the wall and insulated pipe are filled and perfectly tight. Wall and floor openings must be large enough to allow for full thickness of covering.

On low pressure systems where Freon or Methyl Chloride are employed, pipe covering is not necessary.

Condensing Unit

(Freon)

The specifications for the locker plants require the following performance guarantee:

The contractor guarantees, for a period of one year after acceptance by the cooperative and REA, that the design and construction of the building and equipment shall be such as to maintain, under normal operating conditions, the temperatures as specified under room temperatures, with maximum design ambient temperature of that locality, and with the compressor operating not in excess of 16 hours per day.

The compressor units shall be of the reciprocating, centrifugal, radial or rotary type, rigid in construction, of furnace nickel iron or semi-steel cylinders, honed to precise finish, finned surfaced, or water cooled jacket at head, for the removal of compression heat with adequate gas ports. The crankcase shall be of high grade iron with a sight glass for checking oil level. Suction and discharge valves shall be of high grade Swedish steel, quiet in operation and positive acting. The pistons shall be of high grade iron, accurately finished and carefully matched with compression oil rings and oil groove. Connecting rods shall be of forged steel or high grade iron with large babbitted crank bearings, bronze piston pin bearings, diamond bored to a mirror finish. The crankshaft shall be of open hearth or forged steel, all bearing surfaces hardened and ground, seal shoulder ground to provide a perfect sealing surface. Main bearings shall be of the bronze or die cast type, properly finished for perfect alignment. The lubricating system shall be of the pressure or splash type, so designed that all moving parts of the unit will be adequately oiled. The main bearings should be submerged in oil. The drive shall be of multiple V-belt, built up of rubber, cord and fabric. Compressor and motor pulleys shall be specially grooved for endless belts. Belt guards shall be supplied of sheet steel and extended in such a manner as to shield belts and pulleys. A liquid receiver shall be provided, of adequate size, of welded seamless steel, welded steel heads, mounted in the base under the compressor and motor, and equipped with a fusible safety plug. The condenser shall be of the radiator type of finned tubing. A metal shroud around the condenser shall be installed in such a manner as to direct the flow of the air drawn thru the condenser by fans. In case the condensing unit is of the water cooled type, a liquid receiver shall be furnished of adequate size, with a liquid level indicator. A suction line strainer screen shall be provided in the suction manifold. A mercury type or similar control, with combined high pressure cutout and low pressure control switch, with magnetic, across the line or reduced voltage starter as specified, together with a complete charge of refrigerant sealed in the receiver, shall be furnished as a part of the condensing unit assembly. In addition to the above equipment, an oil separator of proper size shall be installed in the hot gas line between the compressor and receiver. The condensing unit shall conform in every respect to the standards as set forth by the American Society of Refrigeration Engineers and the American Standards Association.

The condensing units shall be located as near the refrigerated rooms as possible, having proper ventilation, and be reasonably free from dust and rubbish. The condensing unit shall be placed on a concrete foundation, designed particularly to fit the condensing units to be installed. The foundation shall be level and true in all respects, free from settlement and vibration while condensing units are in operation at maximum speed. Where steel foundations for the compressor are provided by the manufacturer as an integral part of the condensing unit assembly, care shall be exercised in securing a level and firm foundation when making the installation.

The refrigeration system shall be subjected to a vacuum test prior to charging with refrigerant. The compressor shall be operated until there is at least 26 inches of vacuum gauge on the entire refrigeration system. After a period of 30 minutes, if there is no loss on the system, 5 pounds of refrigerant pressure (F12-F22) shall then be induced on the system. The entire ~~system~~ shall then be checked for leaks. If no leaks are found at this pressure, then impose 50 pounds on entire system and test for leaks. If no leaks are found, then charge condensing units with proper charge of refrigerant and proceed to refrigerate rooms to specified temperatures. One year's supply of refrigerant shall be furnished by the contractor.

Evaporators

(Freon)

Evaporators shall be plates, coils (other than bare pipe) or forced air circulation coolers and shall have a cooling capacity not less than that specified on the plans for the space to be cooled. For temperatures between 15°F and 45°F there shall be not more than 4 fins per inch on forced air evaporators. In applications of temperatures above 32°F the evaporators shall be provided with a non-corrosive metal drip pan of sufficient size to collect water from defrosting coils and condensate from expansion valves. Sufficient drains shall be provided from the drip pans to the floor of not less than 5/8" OD copper tubing. A drier coil or external heat exchanger of sufficient size shall be included to prevent suction line sweating. A fan and motor capable of continuous operation shall be provided and shall be quiet and free from vibration under all conditions of operation. The motor shall be of drip or splash-proof design and a vapor-proof switch shall be installed at a convenient location.

Expansion Valves

An adjustable thermostatic expansion valve shall be installed in the refrigerant supply line to each cooling surface. Each thermostatic expansion valve shall be of the diaphragm or bellows type with externally protected superheat adjustment and shall be designed for ten (10) degrees F superheat. The thermostatic bulb shall be attached to the coil between the active refrigerating surface and the heat exchanger.

Condensing Unit

(Ammonia)

The condensing unit shall consist of cylinders cast separately from the crankcase of semi-steel to insure strength and wearing quality. Cylinder walls shall be ground and lapped with water jacket, cast integrally with cylinders. Housing and bearings shall be drilled in such a manner as to insure perfect alignment. The crankcase shall be provided with a hand hole for cleaning and adjusting the bearings. An oil gauge shall be provided, giving ready indication of the oil level in the crankcase. Discharge valves may be of the poppet type, located above the piston in a safety head protecting the machine against excessive pressures. The valves shall be high tensile steel, carefully balanced, insuring rapid opening and closing. Connecting rods shall be of malleable iron with removable wrist pin bearings, also removable die cast babbit crankpin bearings provided with shim adjustment. Lubrication shall be of the force feed type.

The crankshaft shall be fabricated from the best quality open hearth steel, die forged, turned and ground to gauge. Provisions shall be made for forced feed lubrication. Stuffing boxes shall have ample depth with oil gland that can be automatically lubricated from the crankcase. Lubrication shall be of the forced feed type, guaranteed to provide adequate lubrication to all moving parts. The drive shall be of the V-belt type with the compressor and motor pulleys grooved for multiple endless belts built up of rubber, cord and fabric, insuring quiet operation and minimum slip and friction loss. The condenser shall be of the shell and tube type, with ample surface of welded construction with tube head welded to the shell; seamless steel tubes shall be provided, expanded into the tube heads. A condensing water regulating valve, high pressure cutout, refrigeration control valve, thermostat, high and low pressure gauges, suction strainer and shut-off valve, as well as a scale trap in the liquor line, shall be supplied as an integral part of the condensing unit assembly.

In the case of self contained units, care shall be exercised to provide additional receiver capacity where the occasion shall justify.

The condensing unit shall conform in every respect to the standards as set forth by the American Society of Refrigeration Engineers, and the American Standards Association.

Receiver

In case a self contained condensing unit is not applicable, a steel receiver, of ample capacity to hold 20 percent more refrigerant than the normal operating charge, shall be furnished. It shall be completely equipped with inlet and outlet valves, sight glass valves and guard, charging valve, purging valve and relief valve, and shall be mounted in an appropriate location on substantial hangers or saddles. Refrigerant shall be pumped into receiver at completion of work to assure that the proper receiver size is provided. Special precaution shall be taken to pipe the safety valve to a point not less than three feet above the plant roof. The end of the pipe shall be provided with a tee.

Ammonia Evaporators

Evaporators shall consist of plate coils, steel pipe coils or forced air circulation coolers and shall have a cooling capacity not less than that specified on the plans for the room to be cooled. Ammonia coils shall be of full weight black pipe, appropriately designed to conform to the space provided by the architect in the rooms to be refrigerated.

All joints shall be welded, as well as the flanges providing connections to refrigerant lines. Sufficient room shall be provided for thermostatic expansion valves, allowing adequate room for easy service.

Coils shall be supported from the ceiling by 3/4" wrought iron bolts, galvanized with the bearing surfaces insulated against heat loss, and properly fastened to ceiling joists at appropriate locations which shall be specified.

Ammonia forced air cooling units shall be employed as specified in the Aging, Chilling and other rooms maintaining a temperature of 35°F or more. Refer to number of fins per inch as specified under Freon evaporators which applies equally to forced air ammonia evaporators.

Evaporative Condensers

(Freon - Ammonia)

General: The evaporative condenser shall be designed to suit the refrigerant used and shall have a capacity not less than that shown on drawings.

Construction: The condenser unit shall be of weatherproof construction, with casing constructed of not lighter than 18 gauge steel, properly reinforced. The casing shall be provided with doors of suitable size for convenient access to all parts of the condenser. Steel used in the fabrication of the casing, drip pan, fan scrolls and wheels shall be treated to resist corrosion, by bonderizing, galvanizing, parkerizing or galvannealing. The condenser shall be erected on a suitable raised concrete foundation, unless otherwise shown.

Motors shall be quiet in operation and designed to suit the current characteristics shown on drawings.

Fans shall be quiet in operation and be provided with scrolls and wheels of heavy gauge metal.

Spray nozzles shall be of the non-clogging type, installed so as to permit ease in dismantling. The unit shall be designed to operate with "sprays on" during the warm weather and with "sprays off" during the cold weather.

The water pump shall be of non-overloading centrifugal or turbine type with suitable approved bearings, and shall be motor driven, connected to the drip pan and sprays.

The water eliminators shall be constructed of a suitable metal not less than 16 gauge.

Condenser coils shall be of the plain tube or extended fin steel tube type, completely welded and galvanized after assembly.

Water make up assembly shall include a shut off valve, float valve and other necessary appurtenances as required to properly control the water supply to the condenser drip pan.

Condenser controls shall be automatic and shall be designed to start the evaporative condenser when the first condensing unit goes on the line and to stop when the last condensing unit is off the line.

Magnetic starter shall be designed with an integral selector switch for automatic cut-off and for manual operation.

Should the unit be located within the machine room, the exhaust air shall be removed to the outside of the building by means of sheet metal ducts.

Drip pan shall be constructed of not lighter than 20 gauge steel and shall be complete with overflow drain and water make-up connections.

In case the evaporative condenser is located in the open it shall be painted with corrosion resistant lacquer and water lines shall be covered where necessary to prevent freezing.

Where a cooling tower is employed as the cooling medium, the tower shall be constructed so that the base of the drip pan is located twelve inches above the foundation proper.

In case the cooling tower is used in conjunction with a shell and tube condenser, the piping arrangement shall be such that the refrigeration system can be operated during freezing weather or pump failure without the use of the cooling tower. The water supply shall be of adequate capacity for operation with water pressure regulating valves.

Electrical Service

The distribution transformers shall be located not less than 100' from the service entrance to the locker plant.

The service shall be three phase, four wire (where possible) providing 120/240 volts to the various machines. The service wires shall be triple braid weatherproof and of such a size that the voltage drop at full load shall not exceed 2 percent.

All motor connections and installations of equipment wiring must conform to the provisions of the 1940 National Electric Code applying to this class of service.

Electric motors shall conform to the standards as set forth by the National Electric Manufacturers' Association.

Three phase condensing unit motors shall be of the high torque, low starting current type, (Class II), where the electrical characteristics will permit. Motors shall be properly fused and independent of the lighting system.

All motors larger than 5 H.P., if they are of the standard squirrel cage type, (normal torque, normal starting current), shall be provided with reduced voltage starting equipment, preferably of the autotransformer type, similar to General Electric's CR-1034-K1 with overload and low voltage protection, including push button reset.

Conduit of sufficient size shall be provided over all refrigerated rooms, with openings, as shall be specified by the architect.

In case equipment electrically driven should be exposed to the weather, splashproof motors shall be provided with adequate remote control, or automatically controlled from the condensing unit control equipment, as the case may justify.

A double service outlet shall be provided at the panel board of the compressors.

Pilot type switches shall be employed for all refrigerated rooms as well as vapor proof light fixtures and fittings.

Fibre conduit shall be used at all points where an electric service is extended thru an insulated wall. All openings shall be carefully caulked and plugged with a compound that will not solidify at low temperatures.

Refrigeration Piping

Refrigeration piping, from the condensing unit to the evaporators, shall be installed in as nearly a straight line as is possible. The piping shall be located in such a manner as to be safe from injury or disturbance by the general business of the plant. The piping shall be free from excessive turns, restrictions, buckles, creases, kinks or wrinkles, and shall conform to ASHVE standards as well as the standards of the American Society of Testing Materials. In the case of annealed or copper tubing, as well as ammonia piping, the size of the pipe shall be determined according to ASHVE standards, taking into account pressure drop and other factors for the purpose of arriving at the proper size. For short lengths of copper tubing, the following table may be applicable:

<u>Suction Line</u>	<u>Liquid Line</u>	<u>H. P. Rating of Comp. Motor</u>
1-1/8"	3/8"	3
1-3/8"	1/2"	5
1-5/8"	1/2"	7.5
2-1/8"	5/8"	10

All joints of annealed copper tubing, not exceeding 5/8" in outside diameter, may be made with flared compression fittings of approved type, provided that such fittings shall be exposed for visual inspection. Joints of hard drawn copper tubing, if of the sweated capillary type, may be made with an alloy having a melting point greater than 1000°F, or with a solder melting at a point below 500°F but above 350°F. Solder joints in pipe or tubing erected on the premises shall remain intact when subject to a pull apart test equivalent to a pressure of not less than 300 pounds per square inch gauge pressure with a temperature of not less than 800°F.

All sweat fittings, and that part of the pipe or tubing that is inserted into the fitting, shall be polished with steel wool No. 00 or cloth sandpaper, assuring a perfect joint when applying solder. Liquid or paste soldering flux shall be used. Hard solder of 95-5 shall be used and applied so as to have a neat and secure joint without voids and excessive beads of solder at the base of the pipe on a vertical joint, or strings of solder along the pipe on a horizontal joint. The pipe or tubing shall be fastened securely to the ceiling or walls by the use of copper or other non-corrosive metal pipe straps or hangers. In no case shall pipe or tubing be installed in such a manner that it shall be crossed or rest against another pipe. Where refrigeration pipes or tubing are passed thru insulated walls, the pipe shall be caulked to prevent moisture from entering the insulation. Refrigerant lines passing thru floors and concrete walls, as well as cinder foundations and cinder block walls, shall be encased in seamless conduit pipe, the end of which shall then be caulked with asphalt to prevent condensation in the conduit.

In the case of ammonia piping, all joints shall be welded in a clean and workmanlike manner, conforming to the welding section of the American Standards Association Code for pressure piping.

All water piping and connections to pumps, cooling towers and evaporative condensers shall be galvanized seamless pipe and shall be covered as specified. Seamless copper tubing shall be used only with Freon (12-22) or Methyl Chloride.

Lockers

Lockers shall be selected by the cooperative and approved by the Design and Construction Division. They shall be carefully chosen to occupy the space allotted for them. The Lockers shall be not more than six tiers high, with aisles not less than 32" wide.

The Lockers shall be formed of pressed steel, with baked enamel finish. The Lockers shall be numbered consecutively on rust resisting plates of such size as to be easily located and read. Drawers shall be designed in such a manner that they may be easily operated. The Locker doors shall have a neat and attractive appearance with rust resistant tamper-proof hinges. All drawer and door units shall be equipped with master key locks.

It is suggested that, where possible, locker sizes shall conform to the following standard dimensions, and in all cases the depth of the lockers shall be uniform:

Locker Sizes

15" x 20" x 30"	-----	150 lbs. capacity
16" x 18" x 30"	-----	185 lbs. capacity
17" x 20" x 30"	-----	200 lbs. capacity (Door type)
20" x 30" x 16"	-----	200 lbs. capacity
18" x 20" x 30"	-----	215 lbs. capacity
16" x 24" x 30"	-----	250 lbs. capacity (Drawer type)
20" x 20" x 30"	-----	250 lbs. capacity (Drawer type)
15" x 24" x 30"	-----	250 lbs. capacity (Door type)

Overhead Tracking

The refrigeration contractor shall provide and install, where specified, overhead track, track hangers, track switches, switch stops, track rollers and roller hooks, all of which shall be designed to withstand abuse and moisture condensation. Track hangers shall be of such design as to facilitate the installation of the track. The track shall be of good grade steel painted or rust proofed, neatly finished. Switches shall be of the best grade case iron with proper provisions for fastening to the rails. Switch stops shall be provided and installed at appropriate points for easy and safe operation of the assembly. Track rollers shall be true and smooth grooved, designed in such a manner that they will not climb on curves or switches, or wear flat. Cold pressed axle pins or rollers shall be hard, with smooth surfaces easily oiled, providing smooth operation. Track scales shall also be supplied where specified. The track shall be not less than 8'-2" from Locker Plant floor to the bottom of the rail. Where tracks pass thru refrigeration doors, care shall be exercised to see that there shall be no binding or difficulty in properly opening or closing the doors. Track Scales shall be provided where specified of not less than 1500 pounds' capacity.

Processing Equipment

The Refrigeration Contractor shall procure and install in the locker plant, where specified by the Project, the following processing equipment. The equipment shall have a manufacturer's guarantee of the product's quality, providing for immediate replacement in case of flaw, defect or unsatisfactory operation.

- One 40" x 40" meat block, or chopping block, preferably of maple
- One 30" x 72" x 3" cutting table
- One 1-1/2 H.P. electric meat saw (vapor proof motor and switch)
- One 2 H.P. electric meat grinder utility type (vapor proof motor and switch)
- One hand operated sausage stuffer
- One 50 to 75 gallon steam jacketed rendering kettle
- One 1/4 H.P. brine pump (vapor proof motor and switch)
- One beef spreader
- One splitting saw (30")
- One skinning knife (7")
- One 14" steel
- One lamp splitter (12")
- One 16" steak knife
- One 12" steak knife
- One 10" meat cleaver
- One 8" boning knife
- One block scraper (4")
- One block brush (9" x 4" x 6")
- One carborundum stone (8" x 2" x 1")
- Four 19" sausage pans - porcelain
- Six beef luggers
- Two twine cone hangers
- One paper rack pyramid type (24" - 18")
- Fifty bacon hooks
- One 26" butcher saw

One steam blanching kettle (no copper) 30 gal.
One computing scale, 30 lb.
One hand operated lard press (from 2 to 4 gal. capacity)
One lard skimmer
Two lard spades (aluminum)
One lard stirrer
One lard filterer

There shall be installed in the slaughtering house, where specified, the following equipment:

One scalding vat 72" x 30" x 30" with throwout and automatic controls.
One 1500 lb. chain hoist (motor driven)
One hog scraping table 72" x 48"
25 fore-quarter galvanized beef trolley hooks
25 hind-quarter galvanized beef trolley hooks

The Refrigeration Contractor shall submit with his bid a complete list of all processing equipment, including the manufacturer's name, number of pieces and catalog numbers. In addition to this, a complete sketch or diagram shall be submitted, showing all electrical connections to the various machines, and all refrigeration piping.

The hot water tank and pressure tank, together with the deep or shallow well pump, shall be included in the plumbing contract.

